



## BZT52C2V0-BZT52C75

### Surface mount zener diode

#### FEATURES

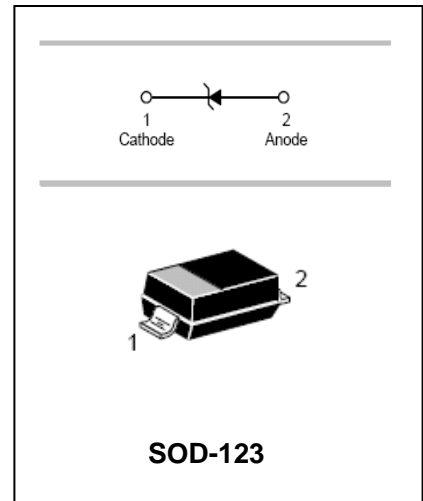
- Planar die construction.
- 500mW power dissipation on ceramic PCB.
- General purpose, medium current.
- Ideally suited for automated assembly processes.



Lead-free

#### APPLICATIONS

- Zener diode.
- Ultra-small surface mount package.



#### ORDERING INFORMATION

| Type No.           | Marking     | Package Code |
|--------------------|-------------|--------------|
| BZT52C2V0-BZT52C75 | See table 2 | SOD-123      |

#### MAXIMUM RATING @ Ta=25°C unless otherwise specified

| Characteristic                              | Symbol           | Value       | Unit |
|---|------------------|-------------|------|
| Forward Voltage @ I <sub>F</sub> =10mA      | V <sub>F</sub>   | 0.9         | V    |
| Power Dissipation                           | P <sub>d</sub>   | 500         | mW   |
| Thermal resistance, junction to ambient air | R <sub>θjA</sub> | 305         | °C/W |
| Junction temperature                        | T <sub>j</sub>   | 150         | °C   |
| Storage temperature range                   | T <sub>stg</sub> | -65 to +150 | °C   |

Notes: 1. Device mounted on ceramic PCB; 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>

2. Short duration test pulse used to minimize self-heating effect.

3. When provided, otherwise, parts are provided with date code only, and type number identifications appears on reel only.

4. f = 1KHz



# Surface mount zener diode

# BZT52C2V0-BZT52C75

## ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

| Type Number | Marking Code | Zener Voltage Range             |        |        |                 | Maximum Zener Impedance          |                                  |                 | Maximum Reverse Current |                 | Typical Temperature Coefficient@ I <sub>ZTC</sub> mV/°C |      | Test Current I <sub>ZTC</sub> mA |
|-------------|--------------|---------------------------------|--------|--------|-----------------|----------------------------------|----------------------------------|-----------------|-------------------------|-----------------|---|------|----------------------------------|
|             |              | V <sub>Z</sub> @I <sub>ZT</sub> |        |        | I <sub>ZT</sub> | Z <sub>ZT</sub> @I <sub>ZT</sub> | Z <sub>ZK</sub> @I <sub>ZK</sub> | I <sub>ZK</sub> | I <sub>R</sub>          | @V <sub>R</sub> | Min   | Max  |                                  |
|             |              | Nom(V)                          | Min(V) | Max(V) | mA              | Ω                                |                                  | mA              | μA                      | V               |   |      |                                  |
| BZT52C2V0   | WY           | 2.0                             | 1.96   | 2.04   | 5               | 100                              | 600                              | 1.0             | 150                     | 1               | -3.5  | 0    | 5                                |
| BZT52C2V2   | WZ           | 2.2                             | 2.156  | 2.244  | 5               | 100                              | 600                              | 1.0             | 120                     | 0.7             | -3.5  | 0    | 5                                |
| BZT52C2V4   | WX           | 2.4                             | 2.2    | 2.6    | 5               | 100                              | 600                              | 1.0             | 50                      | 1.0             | -3.5  | 0    | 5                                |
| BZT52C2V7   | W1           | 2.7                             | 2.5    | 2.9    | 5               | 100                              | 600                              | 1.0             | 20                      | 1.0             | -3.5  | 0    | 5                                |
| BZT52C3V0   | W2           | 3.0                             | 2.8    | 3.2    | 5               | 95                               | 600                              | 1.0             | 10                      | 1.0             | -3.5  | 0    | 5                                |
| BZT52C3V3   | W3           | 3.3                             | 3.1    | 3.5    | 5               | 95                               | 600                              | 1.0             | 5.0                     | 1.0             | -3.5  | 0    | 5                                |
| BZT52C3V6   | W4           | 3.6                             | 3.4    | 3.8    | 5               | 90                               | 600                              | 1.0             | 5.0                     | 1.0             | -3.5  | 0    | 5                                |
| BZT52C3V9   | W5           | 3.9                             | 3.7    | 4.1    | 5               | 90                               | 600                              | 1.0             | 3.0                     | 1.0             | -3.5  | 0    | 5                                |
| BZT52C4V3   | W6           | 4.3                             | 4.0    | 4.6    | 5               | 90                               | 600                              | 1.0             | 3.0                     | 1.0             | -3.5  | 0    | 5                                |
| BZT52C4V7   | W7           | 4.7                             | 4.4    | 5.0    | 5               | 80                               | 500                              | 1.0             | 3.0                     | 2.0             | -3.5  | 0    | 5                                |
| BZT52C5V1   | W8           | 5.1                             | 4.8    | 5.4    | 5               | 60                               | 480                              | 1.0             | 2.0                     | 2.0             | -2.7  | 1.2  | 5                                |
| BZT52C5V6   | W9           | 5.6                             | 5.2    | 6.0    | 5               | 40                               | 400                              | 1.0             | 1.0                     | 2.0             | -2  | 2.5  | 5                                |
| BZT52C6V2   | WA           | 6.2                             | 5.8    | 6.6    | 5               | 10                               | 150                              | 1.0             | 3.0                     | 4.0             | 0.4   | 3.7  | 5                                |
| BZT52C6V8   | WB           | 6.8                             | 6.4    | 7.2    | 5               | 15                               | 80                               | 1.0             | 2.0                     | 4.0             | 1.2   | 4.5  | 5                                |
| BZT52C7V5   | WC           | 7.5                             | 7.0    | 7.9    | 5               | 15                               | 80                               | 1.0             | 1.0                     | 5.0             | 2.5   | 5.3  | 5                                |
| BZT52C8V2   | WD           | 8.2                             | 7.7    | 8.7    | 5               | 15                               | 80                               | 1.0             | 0.7                     | 5.0             | 3.2   | 6.2  | 5                                |
| BZT52C9V1   | WE           | 9.1                             | 8.5    | 9.6    | 5               | 15                               | 100                              | 1.0             | 0.5                     | 6.0             | 3.8   | 7.0  | 5                                |
| BZT52C10    | WF           | 10                              | 9.4    | 10.6   | 5               | 20                               | 150                              | 1.0             | 0.2                     | 7.0             | 4.5   | 8.0  | 5                                |
| BZT52C11    | WG           | 11                              | 10.4   | 11.6   | 5               | 20                               | 150                              | 1.0             | 0.1                     | 8.0             | 5.4   | 9.0  | 5                                |
| BZT52C12    | WH           | 12                              | 11.4   | 12.7   | 5               | 25                               | 150                              | 1.0             | 0.1                     | 8.0             | 6.0   | 10.0 | 5                                |
| BZT52C13    | WI           | 13                              | 12.4   | 14.1   | 5               | 30                               | 170                              | 1.0             | 0.1                     | 8.0             | 7.0   | 11.0 | 5                                |
| BZT52C15    | WJ           | 15                              | 13.8   | 15.6   | 5               | 30                               | 200                              | 1.0             | 0.1                     | 10.5            | 9.2   | 13.0 | 5                                |
| BZT52C16    | WK           | 16                              | 15.3   | 17.1   | 5               | 40                               | 200                              | 1.0             | 0.1                     | 11.2            | 10.4  | 14.0 | 5                                |
| BZT52C18    | WL           | 18                              | 16.8   | 19.1   | 5               | 45                               | 225                              | 1.0             | 0.1                     | 12.6            | 12.4  | 16.0 | 5                                |
| BZT52C20    | WM           | 20                              | 18.8   | 21.2   | 5               | 55                               | 225                              | 1.0             | 0.1                     | 14.0            | 14.4  | 18.0 | 5                                |
| BZT52C22    | WN           | 22                              | 20.8   | 23.3   | 5               | 55                               | 250                              | 1.0             | 0.1                     | 15.4            | 16.4  | 20.0 | 5                                |
| BZT52C24    | WO           | 24                              | 22.8   | 25.6   | 5               | 70                               | 250                              | 1.0             | 0.1                     | 16.8            | 18.4  | 22.0 | 5                                |
| BZT52C27    | WP           | 27                              | 25.1   | 28.9   | 2               | 80                               | 300                              | 0.5             | 0.1                     | 18.9            | 21.4  | 25.3 | 2                                |
| BZT52C30    | WQ           | 30                              | 28.0   | 32.0   | 2               | 80                               | 300                              | 0.5             | 0.1                     | 21.0            | 24.4  | 29.4 | 2                                |
| BZT52C33    | WR           | 33                              | 31.0   | 35.0   | 2               | 80                               | 325                              | 0.5             | 0.1                     | 23.1            | 27.4  | 33.4 | 2                                |
| BZT52C36    | WS           | 36                              | 34.0   | 38.0   | 2               | 90                               | 350                              | 0.5             | 0.1                     | 25.2            | 30.4  | 37.4 | 2                                |
| BZT52C39    | WT           | 39                              | 37.0   | 41.0   | 2               | 130                              | 350                              | 0.5             | 0.1                     | 27.3            | 33.4  | 41.2 | 2                                |
| BZT52C43    | WU           | 43                              | 40.0   | 46.0   | 2               | 100                              | 700                              | 1.0             | 0.1                     | 32              | 10.0  | 12.0 | 5                                |
| BZT52C47    | WV           | 47                              | 44.0   | 50.0   | 2               | 100                              | 750                              | 1.0             | 0.1                     | 35              | 10.0  | 12.0 | 5                                |
| BZT52C51    | WW           | 51                              | 48.0   | 54.0   | 2               | 100                              | 750                              | 1.0             | 0.1                     | 38              | 10.0  | 12.0 | 5                                |

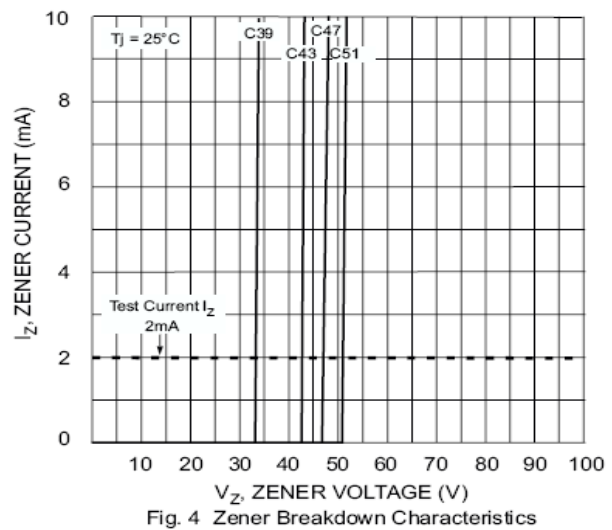
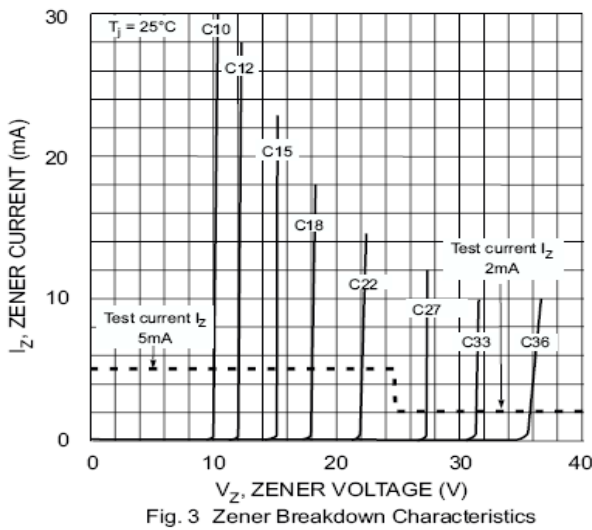
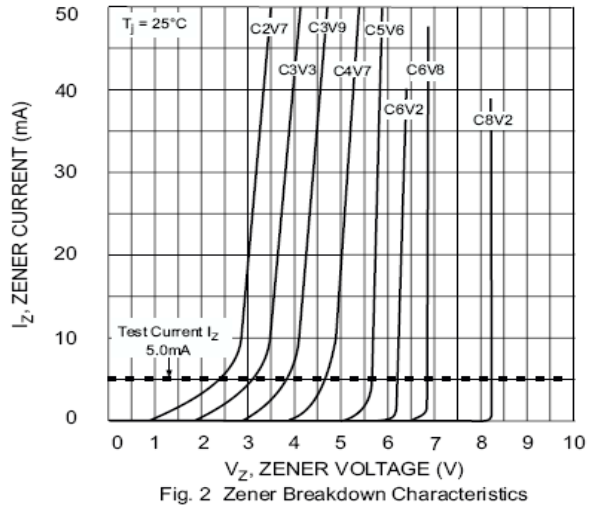
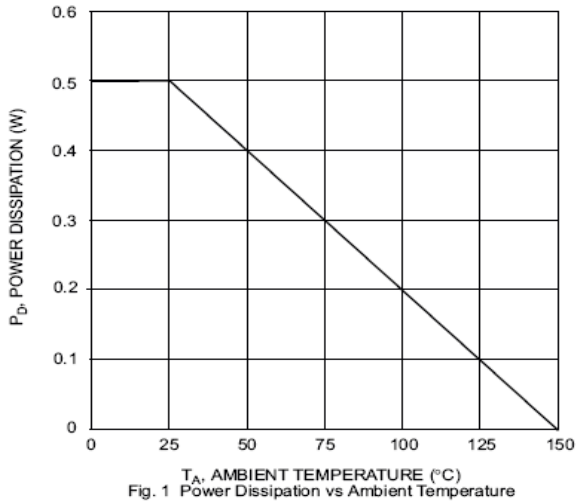


# Surface mount zener diode

# BZT52C2V0-BZT52C75

| Type Number | Marking Code | Zener Voltage Range |        |        |                | Maximum Zener Impedance     |                       |                | Maximum Reverse  |              | Typical Temperature Coefficient@<br>$I_{ZTC}$ mV/°C |      | Test Current $I_{ZTC}$<br>mA |
|-------------|--------------|---------------------|--------|--------|----------------|-----------------------------|-----------------------|----------------|------------------|--------------|---|------|------------------------------|
|             |              | $V_Z@I_{ZT}$        |        |        | $I_{ZT}$<br>mA | $Z_{ZT}@I_{ZT}$<br>$\Omega$ | $Z_{ZK}@I_{ZK}$<br>mA | $I_{ZK}$<br>mA | $I_R$<br>$\mu A$ | @ $V_R$<br>V | Min   | Max  |                              |
|             |              | Nom(V)              | Min(V) | Max(V) |                |                             |                       |                |                  |              |   |      |                              |
| BZT52C56    | WX           | 56                  | 53.2   | 58.8   | 2              | 200                         | 400                   | 0.5            | 0.045            | 39.2         | 10.0  | 12.0 | 5                            |
| BZT52C62    | 6E           | 62                  | 58.9   | 65.1   | 2              | 215                         | 423                   | 0.5            | 0.045            | 43.4         | 10.0  | 12.0 | 5                            |
| BZT52C68    | 6F           | 68                  | 64.6   | 71.4   | 2              | 240                         | 447                   | 0.5            | 0.045            | 47.6         | 10.0  | 12.0 | 5                            |
| BZT52C75    | 6H           | 75                  | 71.25  | 78.75  | 2              | 255                         | 470                   | 0.5            | 0.045            | 52.5         | 10.0  | 12.0 | 5                            |

## TYPICAL CHARACTERISTICS @ $T_a=25^\circ C$ unless otherwise specified





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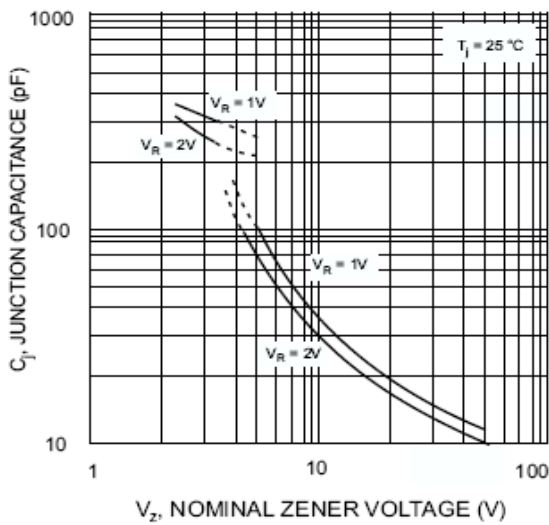


Fig. 5 Junction Capacitance vs Nominal Zener Voltage

## PACKAGE OUTLINE

Plastic surface mounted package

SOD-123

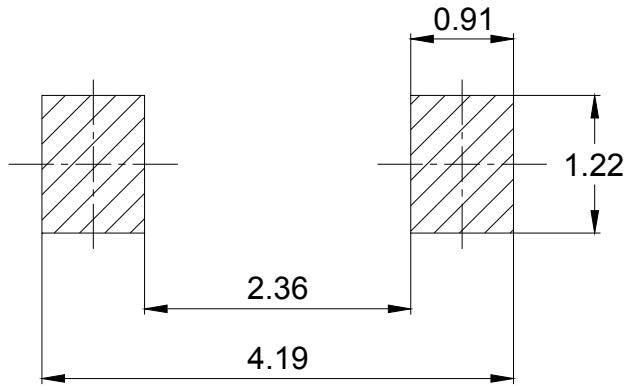
| SOD-123              |              |      |
|----------------------|--------------|------|
| Dim                  | Min          | Max  |
| A                    | 1.45         | 1.75 |
| B                    | 2.55         | 2.85 |
| C                    | 1.15 Typical |      |
| D                    | 0.55 Typical |      |
| E                    | 0.25         | 0.45 |
| H                    | 0.02         | 0.10 |
| J                    | 0.1 Typical  |      |
| K                    | 3.55         | 3.85 |
| All Dimensions in mm |              |      |



**Surface mount zener diode**

**BZT52C2V0-BZT52C75**

**SOLDERING FOOTPRINT**



Unit: mm

**PACKAGE INFORMATION**

| Device             | Package | Shipping       |
|--------------------|---------|----------------|
| BZT52C2V0-BZT52C75 | SOD-123 | 3000/Tape&Reel |

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